

1. (Amended) A process for producing low-molecular olefins by pyrolysis of hydrocarbons, which comprises preheating and evaporating a starting feedstock, mixing the same with a steam-diluent, heating the resulting mixture to the pyrolysis temperature in a blading rotary reactor, quenching a cracked gas and subsequent separation of it, wherein the said heating the resulting mixture to the pyrolysis temperature is performed by mixing the resulting mixture with hot pyrolyzed gas being circulated in a working cavity of the blading rotary reactor for a negligible time in comparison with a duration of pyrolysis reactions.